ΛSL

Australian Society
for Limnology Inc.

NEWSLETTER

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AUSTRALIAN SOCIETY FOR LIMNOLOGY INC.

The Australian Society for Limnology (ASL) is an Australian-based scientific society whose focus is the study and management of inland waters. The ASL was established in 1961, and has a current membership of over 500 researchers, managers, engineers, teachers and tertiary level students from all states and territories. Members have a strong professional interest in inland aquatic issues, including the maintenance of biodiversity, the maintenance and/or restoration of water quality, and the wise use of aquatic resources. The Society also has a strong interest in fostering the scientific and intellectual development of tertiary students.

The Society includes members working in government agencies, tertiary institutions and many industries related to aquatic resources. Through their daily activities, members have contact with local communities and are in a sound position to interpret and advise on inland water issues. The Society has a substantial knowledge base, and has assumed a responsibility to ensure that this is available to those who manage inland waters.

Accordingly, the charter of the ASL is to further our understanding of Australia's inland waters and to promote their wise use and sustainable management. In this manner we will contribute to the continued existence of this valued resource and the maintenance and enhancement of the quality of life for all Australians.

The ASL regularly produces a newsletter with notes on limnological activities, articles of interest, book reviews and announcements of upcoming events likely to be of interest to Members.

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Membership Information and a list of the Regional Executive Officers can be found at the back of this Newsletter

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Material for publication in the Volume 37 #3 Issue of the Newsletter should be sent to the Editor (see back pages) by 3rd December 1999

Long articles should be forwarded as unformatted text on a disk or via email.

ASL Home Page (NEW ADDRESS!)

http://www.asl.org.au/

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EDITORIAL

This issue sees some really gutsy stuff. To me, the results of the name change survey (page 34 for those of you who wish to rush there) is the most interesting bit. You probably have already guessed the results, but upon reflection, it might have been fun to run a book to see who got the closest. The results do suggest the conservative nature of our society but they also reflect a healthy interest among the members. It is good to see we are still alive.

There are several announcements inside this issue, including a call for submissions for the new National Water Quality Management Strategy (NWQMS) Water Quality Guidelines. The draft documents are rather large but it is well worth the effort getting through them. The bit that I like is that you can get the draft on a CD rather than tying up your web browser for a few hours trying to download it.

The articles in this issue include a report from the Policy Standing Committee and a brief report on the Murray-Darling "Cap". Our resident Limnological Guru tells us how to deal with the public (I love the bit about the silverfish).

This issue also sees a new record for the number of book reviews. Five reviews, including the latest Australian Limno text written by Andrew Boulton and Margaret Brock, can be found near the back.

On a sad note the bibliography does not appear in this issue and has most likely gone to the grave. But some form of a bibliography may soon exist on the new ASL web page courtesy of Simon Josey. Maybe we could all donate our electronic databases and get a mammoth bibliography available on the net.

Speaking of the web page, the last two issues and this one are downloadable. I have raised the possibility with the executive of letting individual members have the option of receiving an electronic version rather than a paper version. Don't panic this does not mean that the newsletter will never see a post box again. If a substantial number of members choose not to have their newsletters delivered, this will save a number of trees and a bit of money for the society. I just thought I would raise people's awareness of the matter but this issue will be raised at the next AGM.

Have a good read.

Did you know: -
A psychological study into visual perception has found that people have trouble drawing the water level on a diagram of a tilted wine glass. Tests have consistently found that 40% of people just can't get it right- that no matter what the glass is doing the water level is always horizontal.

PRESIDENT'S REPORT

A busy three months...

The Executive has had a busy three months, overseeing and ratifying activities of the Society. I report here briefly on some of these activities.

Policy Standing Committee
As promised, the Executive has established a Policy Standing Committee according to the intent of the Futures Document (which you can now find on the web site!). This Committee will exist for the term of the Executive (hence "Standing"), operates by a type of consensus (email flinging and collation), and it presents its first report in this newsletter.

Name Change Ballot
As reported in previous circulars (see June newsletter, Minutes of Executive's March teleconference), the Executive established a group to conduct a ballot of ASL members on the issue of the Society's name. The ballot has been conducted, chaired by Vice-Pres. Jane Chambers, and the report on the ballot is included in this newsletter, including a series of recommendations to be taken to the AGM in December. I would like to thank Jane for the work that she put into the process, and thank those members who voted in the ballot. I might add that our rationale throughout this exercise has been to use the ballot to gauge the mood of the members, in order to formulate a recommendation for consideration at the AGM. We believe that the results of the ballot (and any subsequent discussion) should then guide the AGM in making its decision.

Submissions
Two submissions have been prepared:
• An Impact Assessment Study concerning a proposal to dam the Cooper Creek was brought to our attention by ASL member Jim Puckridge. The Executive agreed that the Society should lodge a submission with the Barcoo Shire (which must decide whether to approve a change of land use on the Currareva property to allow irrigation). A draft ASL submission was compiled by Jim Puckridge, Fran Sheldon and others, and posted on the ASL listserver. Responses from interested members were collated and changes made. I appended a cover letter and the submission was sent to the Barcoo Shire. The submission was consistent with our Dryland Rivers Policy Document. We await a formal response.
• A Federal Parliamentary Inquiry into catchment management is being conducted by The House of Representatives Standing Committee on Environment and Heritage. A note on the ASL's submission to the Inquiry (made via the ASL Policy Standing Committee) is included in this newsletter. Of particular note here is the use of our policy documents as generic, informative position statements for use in submissions.

ASL Web Site
The ASL web site is up and running, including a mechanism for on-line membership application. This site has been developed and is being maintained by the ASL's Webmaster, Simon Josey. I noted that the site had been visited 347 times in just over two months, which is good news for the Society. More details on the web site are included in this newsletter. The web site is seen as vital to the future of ASL, and will be an on-going budgetary item for the Society. And Simon has been doing a fabulous job!

Congresses
No doubt all members will have received notification of this year's congress, a joint one with the New Zealand Limnological Society, to be held in December 1999 at Wairakei, North Island, New Zealand. I look forward to seeing many ASL members over there; it's beginning to look as if it will be one to remember.
The 2000 congress will almost certainly be held in Darwin, or thereabouts - so time to plan ahead for a visit to the Northern Territory.

Cheers
Pierre Horwitz
4th September 1999.

OVER THE BACKFENCE

DEPARTMENT OF ENVIRONMENTAL BIOLOGY, THE UNIVERSITY OF ADELAIDE:

THE BENHAM BUNCH! (SA)

George Ganf returned from France looking very refreshed and full of stories of trout fishing and wine, but has quickly fallen back into the role of the supervisor we all know with the onset of the new honours students. **Nicole Sale** has been contemplating "space" and its role in competition, and even though she has only just started she has already been driven to the "Honours State" and is wandering around muttering under her breath about "Space.....Pre-emption?????" **Leon Linden**, who spent some time with us last year working on algae in the Torrens has decided to take on an honours project this year looking at algal growth and loss processes under nutrient additions from stormwater and creek water in the Torrens. He doesn't seem to be suffering from the "Honours State" yet..... but there is plenty of time left!! Our honours students who started at the beginning of the year are now starting to count the days. **Nelda Sale** has been seen wearing what looks like a moon suit in the ponds to measure the regrowth from different sized rhizomes from a variety of species across a water depth gradient. **Shaun Kennedy** has been gleefully informing us all when another one of his willows has succumb to his salinity treatments. **Ben Knights** hasn't been seen too much, but he has finally got all his soil samples out of the drying oven which can only be a good thing! **David Cenzato** and **Jason Nicol** are both in the process of writing papers from their honours work so keep on eye out in the journals of 2000 for those!

There seems to have been a mass exodus of PhD students of late, with **Karen Westwood** sampling algae and chasing penguins in Antarctica on an expedition aboard the "Aurora Australis". **Rudi Regel** must have found the PhD life a bit too tough and only a month or so into it has taken an intermission and gone to Europe for a few months. **Kerri Muller** has joined the corporate world and is now working for Woodward-Clyde and the PhD is getting close to completion. **Sean White** is in the process of getting his thesis on pressurisation in aquatic plants accepted and hopes to make it into the October graduation ceremony. But all these "goings" have been offset by the return of **Michelle Bald** from a two year intermission while she was living in the USA (and survived I may add!!) and will be resuming her project on plant performance in constructed wetlands. **Mark Siebentritt** has been seen gallivanting around the wetlands of the lower Murray looking for field sites to conduct his PhD research on plant responses to "wetting and drying", and seems to have found some joy at the wetland associated with the Banrock Station winery!

By **Michelle Bald**

AUSTRALIAN MUSEUM (NSW)

During June and July 1999, **Winston Ponder** and **Buz Wilson** visited around 115 sites in the Kimberley WA and Northern Territory, collecting molluscs and crustaceans. Highlights of this trip include: two new collections of new genera of Phreatoicidea (one was described in the Zool. Linn. Soc. Lond. earlier this year); a Bou Roche pump collection of 3 species (in a new genus) of Hydrobiidae from Limestone Gorge in the Gregory National Park; the first record (also at Gregory NP) of protojanirid isopods for Australia; and numerous specimens of vivaparids and other molluscs collected at many places, including new records and taxa.

The Protojaniridae were previously known from only from Sri Lanka and South Africa. The aussie prototjanirids are most like the South African species.

One of the most memorable experiences from this trip occurred around an evening campfire next to the King Edward River; we were startled by frogs who emerged from the hot ashes, crawled a short distance and then calmly reburied themselves. The flies at Gregory NP were especially persistent, resulting in their inadvertent consumption by both biologists. After parting ways in Katherine, **Buz Wilson** continued on to Jabiru to work with **Chris Humphrey** at ERISS (more on that later) while **Winston** made his way south via the Finke Gorge. During September, **Steve Keable**, visiting crustacean molecular biologist **Regina Wetzer** and **Buz Wilson** will travel to southern Western Australia and Victoria on an ABRS funded field trip.

from **Winston Ponder**

ALBURY/WODONGA CAMPUS OF LA TROBE UNI (VIC)

As is usual the in small rural campuses teaching has been the main activity this semester for **Phil Suter**. However, a number of students are continuing to advance knowledge on real animals such as mayflies. **Brooke Margery-Barrett** and **Janelle Collinge** are near completion of their honours on the genetics of *Nousia* and *Cloeon* respectively. My belief that there is only one species of *Cloeon* in Australia has received a severe battering! **Kath Oswald** is also nearing the write up stage of her honours on the collonisation of benthic diatoms in a temporary stream in Victoria.

Two new honours students have started, **Paul McInerney** (Effect of an inter-basin water transfer on macroinvertebrates) and **Paul Ratajczyk** (Longitudinal distribution of Mayflies in the Kiewa River) and are into the field already. **Tim Curmi** has just returned from his field trip to the Lachlan River and reports have it that he shared a beer or two with **Patrick Driver**.

A couple of other interesting publications have appeared on Australian Mayflies which are worthy of comment. **Pat McCafferty** (1999, Entomol News 110: 191) has acknowledged in print that the Family Siphlaenigmatidae do not occur in Australia and that the record published by **Lugo-Ortiz** and **McCafferty** (1998, Proc Entomol Soc Wash 100: 209-213) was as a result of mislabelled material from New Zealand. In addition **Lugo-Ortiz, McCafferty** and **Waltz** (1999, Trans Am. Entomol. Soc. 125: 1-37) have described 3 species of Pseudocloeon from Australia.

Syarifuddin has started writing up his PhD on "The role of surface complexity and Fish Predation in Structuring Invertebrate Communities on Woody Substrates" and Ivor and I are looking forward to seeing how the stats turned out!

Phil Suter has finally completed sorting of the New England collection made in November 1998 with **John Dean** on the "Harker Revisited Collection" and has recognised 11species of Baetid and 7 species of Caenid from the region. In addition specimens consistent with the species **Harker** described in th 50s have been reared, so "Baetis confluens and Baetis baddamsae" have finally been confirmed. This has been done in between lectures and chocolate merchandising in an attempt to raise money to assist his son **Matthew** to go to Colombia in November with the Australian National Schoolboy Roller Hockey Team to compete in the inaugural Schoolboy World Championships.

This report has been prepared under duress as the Editor offered to use his editorial perogative and write his own contribution.

from **Phil Suter**

EPA QUEENSLAND

WATER RESOURCE ENVIRONMENTAL PLANNING (WREP)

Since our initial report in the ASL newsletter, we "Wreppers" have been pretty busy. Highlights of our work include progressing the river classification and conservation systems, assessing weir and dam proposals, trialing a multiple support decision making tool (in conjunction with Department of Natural Resources - DNR), developing some rapid site evaluation methodologies and working with DNR's Water Allocation Management Plans/Water Management Plan processes in a number of catchments.

In central office, **Fiona Redfern** (our GIS wizz) has been finding out just how difficult it is to come up with a reliable version of a stream network. **Jo Bain** has been learning about the problems associated with trying to deal with 350,000 ArcView shapefiles for 13 decades with 9 themes and innumerable sub-themes and the impacts that this has on the reliability of GIS function. She has also been trying to come to grips with concepts of 'sustainable' cultural heritage management and how this affects the identification and management of cultural heritage values within the landscape. **Dane Moulton** has recently returned from a month in the UK and has settled back into work. Dane's been busy supporting all the new Wreppers and has been a GREAT help. **John Bennett** has been trying to keep the WREP program ticking along. Also, he recently attended a workshop at Couran Cove (South Stradbroke Island) for all scientists etc who will be playing a major part in the new CRC for Coastal Zone, Estuary and Waterway Management. Integrated projects are hoped to be approved in December this year. **Norrie Sanders (Mr Guideline)** has been developing guidelines in conjunction with other Wreppers on evaluating water resource and associated developments, along with those for evaluating conservation status of rivers. We hope he will write a guideline for writing guidelines before his contract finishes. After the initial data gathering effort **Ngaire Phillips** has been immersed in data in an attempt to extract the relevant bits from a huge variety of databases for use in deriving a river classification and conservation system. In addition, she's been attending various "watery" meetings. **Sandy Coulter** has been sorting out the various administration problems associated with the influx of new staff.

John Platten and **Susan Cunningham**, in our Rockhampton office, have been learning how big our catchments are, the Fitzroy is immense. They want (need?) a helicopter. They have been grappling with some aerial photography and rapid site assessment methodologies to assist in infrastructure assessment.

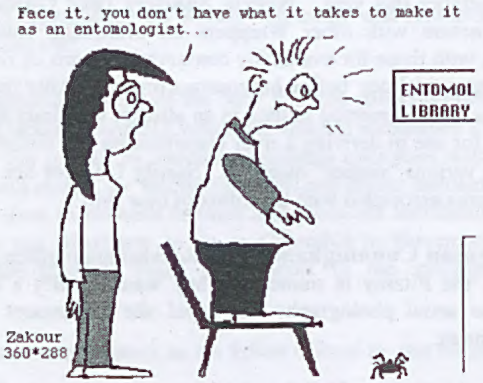
Bill Macfarlane and **Arthur Knight** (Maryborough) have been developing environmental criteria for use by the MODSS (Multilple Objective Decision Support System), undertaking field inspections of proposed dam sites to assess inundation impacts, reviewing consultants reports of various water resource developments within the Burnett River catchment and attending community, technical and departmental meetings concerning the Burnett WAMP and the Mary River Catchment Study.

Stephen Skull and **Darren Fielder** (Toowoomba) are our most recent (prized?) acquisitions who have been busy familiarising themselves with a large range of projects across the EPA's Southern Region (Brisbane to beyond Thargomindah). It is becoming apparent that they will be very busy with WAMPs and WMPs in their various shapes and forms over the next six months for the Condamine-Balonne, Border Rivers, Moonie, Paroo, Bulloo, Nebine and Warrego river systems. The need for input to the assessment of EIS documents is also on the rise, with several weirs on the

Condamine River currently under review. They also are lucky enough to receive and process numerous applications from landholders wanting to develop water infrastructure as part of the DNR funded Development Incentive Scheme. And finally they endeavour to keep up with all the exciting results (Burnett Catchment Field Trial and Waterway Conservation Significance Assessment) coming out of Central Office!

Martin Cohen and **John Richter** (Townsville) and **David Fisk** (Cairns) have been so busy they haven't had time to tell us what they're doing!

From **Ngaire Phillips**



MURRAY-DARLING FRESHWATER RESEARCH CENTRE

The Campaspe Flow Manipulation project is now in its fourth year and we STILL have no flow change! **Paul Humphries** and **Jane Growns** are presently engaged in intensive rain dance training and have had some modest success with minor flooding above Lake Eppalock in recent weeks. If the dam does not fill in the next few weeks we will probably all be looking for alternative occupations until the drought breaks and we can start the post-intervention part of the project. Meanwhile, we have more samples and data than you can poke a stick at and are doing our best to interpret it. **Paul** and **Luciano Serafini** are preparing talks for the upcoming Fish Biology conference in Bendigo, while **Jane, Peter Hancock** and **Anthony (Rex) Conallin** are doing likewise for the NZLS/ASL conference in New Zealand. (Hmm, wonder who go the best deal there?) **Bernie Cockayne** just keeps on plugging away behind the microscope while dreaming of the pleasures of moving to Queensland in October.

John Langley from Middlesex University has returned to England after spending six months working with **Russ Shiel, John Green** (Uni of Waikato, NZ) and **Daryl Nielsen. John Langley** examined the relative contributions of zooplankton emergence and dispersal the productivity of ephemeral floodplain waterbodies. **John Green** has also returned to New Zealand after spending six months writing up data collected in past trips to Albury, while continuing to collect and generate more samples. **Daryl** has submitted his PhD thesis and is impatiently awaiting examiners reports. **Russell** is currently attending a conference in Europe and flying the flag at the 40th birthday celebrations of the mini. The Riverine-Floodplain interactions project with **Helen King** and **Garth Watson** are waiting for rain and floods on the Murrumbidgee River at Wagga Wagga, however it appears that they will have to be patient for a while longer.

John Hawking attended the 1999 International Congress of Odonatology at Colgate University, Hamilton, New York State, USA from July 11-16th. **John** presented a paper on his ecological studies of a dragonfly larval assemblage from Middle Creek. He was also involved in the IUCN Specialist Group Workshop presenting a paper on the Current Conservation Status of Australian Dragonflies. **John** also participated in the Post Symposium Tour which conducted a Dragonfly Fauna Survey of the Adirondack Mountains (tough work, but someone has to do it).

The macroinvertebrate lab has been invaded by LaTrobe University undergraduate and graduate students. **Rob Cook**, fresh from Honours (the effect of shading on biofilm biomass, macroinvertebrate density and macroinvertebrate community structure in the Murray and Darling Rivers at Wentworth) has started a one year project looking at the effect of releases of cooling water from Fletcher Challenge Paper on Eight Mile Creek. **Melanie Pearson** has started sorting and identifying macroinvertebrates from Artificial Substrate Samples as part of the MDBC's long term monitoring of the River Murray. **Amanda Muggins** is conducting an undergraduate project on caenid mayflies from two sites in the Upper Murray. **Amanda** has identified and measured thousands of the little beasts to species and the preliminary results have shown excellent temporal trends.

John Whittington and **Terry Hillman** have (amongst many other things in their busy lives) produced a brochure which explains need for a Cap on water diversions in the Murray-Darling Basin and also for smarter flow regimes – see article elsewhere in this newsletter.

We have a new PhD student! Her name is **Julia Howitt** and she's working on photochemical reactions in the water column and changes to the bioavailability of carbon. **Barry Hart** is supervising through Monash while **Darren Baldwin** and **Gavin Rees** are supervising here.

Ali Mitchell is now half-way through (that wonderful milestone!!) her PhD which is trying to sort out the interactions of the anaerobic nutrient cycling processes in the sediments. **Alistar Robertson** is supervising through CSU while **Darren** and **Gavin** are supervising here (busy boys!). She's swimming in data at the moment and has absolutely no idea what any of it means.

From **Jane Growns**

AUSTRALIAN WATER QUALITY CENTRE (SA)

The Australian Water Quality Centre stream ecology unit has seen a few changes. The Great Steak Devourer **Rob Walsh** has left to take a position with the State National Parks & Wildlife Service as wetlands project leader to formulate a new wetlands policy. We know the jump from Tasmanian wetlands to Lake Eyre wetlands is huge but he will make the change easily (with the help of SA red wines and the farewell curry night). His expertise will be missed especially in the Zooplankton identification area.

As compensation **Sam Wade** (who prefers to devour prickly pear fruit, and these days resembles one!) has given us three days a week instead of two. **Pedro** has completed a report on the impact of the WWTP at Millicent on the receiving waters which are drains created in the 1860s –1880s. The region was an extensive wetland for most of the year prior to European settlement and has no natural creeks. The impact is very seasonal. He plans to wind up his 1964 Toyota Crown for a run up the Adelaide Hills for the *Birdwood Classic* in September

We hope that three members of the team, **Paul McEvoy, Vladimir Tsymbal** and **Pedro,** will give presentations at ASL in New Zealand. **Daria Schulze** is off on a six week OS holiday that started in Alaska. **Paul** is (finally!) developing plans and contracts for a new cellar plus house.

Data from the Monitoring River Health program is being used to determine environmental water requirements of macroinvertebrates in the Broughton River. The Gawler River and Wakefield River have already been examined. The Broughton River has few impoundments and a variety of watershed types in its catchment. The Light River will be done next which will complete the list of large semi-arid rivers north of Adelaide. In between his work committments, **Chris Madden** has been participating in selection trials for olympic volleyball officials. No notable reports from the Canberra sessions, but there was a brush with an infamous fireman in central Sydney! We hope he will be doing it for Australia in 2000.

Field work will begin soon for the last round of MRH sampling. South Australia has had a very dry winter after a reasonably wet autumn, so water may be hard to find. Competition will again be strong for the premier field trip to Coober Pedy, Oodnadatta and William Creek. Lets hope the 4WD has tyres of the same size for that run. New beasts are still turning up occasionally. Amphipods of the family Corophiidae have been found in the Bremer River, which flows into Lake Alexandrina at the mouth of the Murray River. **Tracy Venus** and **Daria Schulze** have been using a key to Hydrophilidae larvae developed by **Chris Watts** and have been adding their own observations from MRH sampling to it.

from **Paul McEvoy**

CENTRE FOR CATCHMENT AND IN-STREAM RESEARCH, GRIFFITH UNIVERSITY, BRISBANE

Angela Arthington, Mark Kennard and **Steve Mackay** (CCISR) joined by **Brad Pusey** (River Research Pty Ltd), **Sandra Brizga** (Melbourne geomorphologist) and **Garry Werren** (ACTFR riparian ecologist) began field work in the Pioneer catchment, where methods for assessing the condition of streams in relation to changes in flow regime are being developed and tested as part of the "Flow Regulation Benchmarking Project" funded by DNR.

The same team has been working on various DNR WAMPs (Water Allocation Management Plans) for the Barron, Logan and Burnett catchments.

Andrea Schmitt has commenced a PhD jointly supervised by **James Udy** and **Stuart Bunn**. The project broadly examines spatial and temporal nutrient cycling in a number of streams within the Brisbane River Catchment. **Andrea** is particularly interested in the nutrient dynamics in relation to stream-bed litter and the associated invertebrates. **Andrea** and **James** have completed the pilot study and the first sampling trip.

Sam Capon handed in her Honours Thesis entitled "Zonation of floodplain vegetation on a flood frequency gradient in a variable, arid-zone catchment". She is currently writing up aspects of this work for publication.

From **Stephen Balcombe**

FRESHWATER ECOLOGY, DEPARTMENT OF NATURAL RERSOURCES AND ENVIRONMENT, VICTORIA.

Freshwater Ecology has seen a recent influx of Queenslanders as new staff with some AFFA (Agriculture Fisheries and Forestry Australia) projects now up and running (more about the projects later). The new faces include **Ivor Stuart** (formerly based in Bundaberg with the Queensland DPI), **Tom Ryan** and **Paul Close** (both formerly based in Walkamin with the Queensland DPI). There has also been a reshuffle of duties and responsibilities with the new AFFA projects and the dust is just beginning to settle.

There are a number of Regional Forest Agreement (RFA) projects which are nearing completion with some interesting results. **Phil Papas**, **Ben Kefford**, **Di Crowther**, **Ruth Lennie** and **Michael Nicol** are completing two macroinvertebrate-based projects which are examining the effectiveness of buffer strips in harvesting areas in protecting stream ecology and developing a predictive RIVPACS-like model for forested areas of Victoria. **Justin O'Connor** and **Tarmo Raadik** are completing the data analysis and write-up for the RFA fish survey which has collected data from over 600 sites in Victoria. The RFA threatened fish program is also in the write up phase. This project examined aspects of the life history requirements of forest dependant threatened species thought to be impacted upon by sediment, including the Australian Grayling, Two-spined Blackfish, Spotted Galaxias and Mountain Galaxias.

Speaking of things threatened, the buggos (**Phil**, **Di**, **Mike**, **Ruth** and **Ben**) have been sampling for threatened amphipod species in the Dandenong Ranges and in doing so have found some other interesting critters on the side. A recovery team including representatives from local government, the Victorian EPA, DNRE and two water authorities has been established to develop a plan for the protection of the species. On the fish front; **Pam Clunie**, **John McKenzie** and **John Kochn** are developing recovery plans for freshwater catfish and silver perch in the Murray-Darling Basin. **Tarmo Raadik** has completed an investigation into the status of the threatened Southern Purple-spotted Gudgeon in Cardross Lakes, NW Victoria which was conducted during March. No gudgeons were recorded and the population appears to have crashed. A detailed investigation was also conducted of other potential reintroduction sites in NW Victoria near Mildura. **Tarmo**, **Wayne Koster** and **Ben** are finishing a report on the distribution and habitat requirements of three species of spiny cray in the Gippsland area from RFA data as well. A recent split in the distribution of one of these species may result in a threatened species listing in the future.

Brenton Zampatti and **Paul Close** are working under tight deadlines with the streamflow management plans which are co-ordinated by the state water authorities (Melbourne Water, Southern Rural Water and Goulburn-Murray Water). The aims of these plans are to set environmental objectives for flow levels in regulated rivers (those with Dams, other storages or diversions) and to negotiate environmental flows. Fish populations and fish habitat is currently being used as the biological indicator for flow requirements. **Brenton Zampatti** is also handling some other consultancy projects including the effect of dam de-silting on the river blackfish populations of the Kiewa, Royston and Rubicon systems. The water quality and macroinvertebrate components of this study are being undertaken by the buggos. **Ben**'s work with determining the toxicity of saline waste disposal water continues in the Barwon River catchment.

The aforementioned AFFA projects have commenced with **Alistair Brown** from Aquatic Ecosse (formerly with DNRE) overseeing the management of each project. **Tim O'Brien** is working on

the downstream migration of adult fish in the southern Murray-Darling Basin, a project which aims to determine the ecological function of downstream movement for Murray-Darling fish species; assess the likely impacts of weirs on the life cycle for each species; and, determine the damage to fish caused by barriers to downstream movement. **Tim** and **Tom Ryan** are undertaking thermal rehabilitation research which will determine the preferred thermal requirements of several Murray-Darling Basin native freshwater fish species and establish response of larval survival and growth rates to temperature variation. This is a recently-commenced 3-year AFFA funded project.

An endangered species survival decision tool is being developed by **Simon Nicol** and **Charles Todd** which aims to develop a better understanding of the strategies for population dynamics of threatened fish, provide better management decisions in relation to stockings and improve the effectiveness of management options for the rehabilitation of threatened native fish populations. **Ivor Stuart** has recently commenced a 3-year AFFA funded project to identify movement patterns of carp and the importance of off-stream habitat for spawning and recruitment. The project focus will be in the Barmah forest and will include extensive sampling using netting and electrofishing. Carp movements will be assessed using 50 fish implanted with radio transmitters and several remote logging stations. Sampling sites have been recently selected and pilot tagging and tracking of 5 carp within the Barmah forest initiated, intensive fieldwork will begin in October 1999.

John, **Simon** and **Jason Lieschke** are undertaking AFFA funded research examining river habitat rehabilitation through re-snagging in the Murray-Darling. This project aims to develop practical techniques identified for re-snagging and fish habitat rehabilitation; identify snag design and practical management options for individual species and fish community rehabilitation; evaluate the cost/benefit of re-snagging and alternative re-snagging techniques; and, develop a projection model for the benefits of re-snagging at other sites.

Assisted by AFFA funding, **Alistair** and **Pam** are developing a Murray-Darling fish community recovery plan which will identify: the principal determinants of fish community structure; key threats to species and the fish community at appropriate spatial and temporal scales; critical areas for species and habitat protection/rehabilitation; and, priority implementation tasks for incorporation into relevant catchment management strategies.

Alicia Lucas, **John** and **Belinda Cant** are undertaking two LWRRDC projects under the umbrella of ?River Restoration?. A generic framework for river restoration is under development which will be used by agencies, river management professionals and catchment and community groups. The framework will indicate and describe the range of tools available for each component of restoration and identify where further R&D is required. River restoration through integrated management is designing a tool to assist river managers in the Murray-Darling Basin which will provide assessment methods for identifying restoration problems and set objectives for the clear measurement of restoration activities.

by **Phil Papas**.

1.2 HOURS

ASL EXECUTIVE TELECONFERENCE, MON 6 SEPT 1999

Present: P.Horwitz, M.Hart, R.Ogden, I.Growns, R.O'Connor, R.Butcher, R.Marchant

Apologies: D.Nias, G.Jones, K.Muller, J.Chambers, J.Davis, M.Finlayson

1. Minutes of previous meeting: accepted.

2. Matters arising: (a) state chapters – members in various states are to be congratulated for organising ASL events: R.Butcher and R.StClair (Vic) for a series of monthly talks by various local speakers; K.Muller and F.Sheldon (SA) for a student conference and R.O'Connor (NT) for a seminar at NTU given by S.Lake. (b) discretionary funding requests – guidelines for these are still being developed. (c) ASL medal – a nomination has been received and in being assessed by M.Brock, W.D.Williams and P.Horwitz.. (d) secretariat – R.Ogden is looking into the possibility of National Heritage Trust funding for this. (e) policy documents – the dryland policy document is in the process of being distributed.

3. Name Change: The meeting considered a report prepared by the Name Change sub-committee, chaired by J.Chambers. The report summarised results of the recent name change ballot: 258 members voted on this issue; this represents just under half the membership. The majority was not in favour of a name change. The report was accepted with thanks, and endorsed for publication in the newsletter and on the ASL listserver. The executive also endorsed the three recommendations in the report for presentation to the AGM, namely that no name change occur, that a subtitle to the name be considered and that a campaign to educate the public about the meaning of "limnology" be started.

4. State reports: in addition to the notes above (under matters arising) the Victorian chapter has organised two joint meetings with AMSA for Oct and Nov.

5. Policy standing committee: a report is being prepared for the newsletter by J.Growns, T.Doeg, D.Nias, M.Finlayson, P.Horwitz.

6. Discretionary funding: P.Horwitz and M.Hart have agreed that a maximum budget of $5000 in any one year is suitable for the current financial circumstances of the ASL. After some discussion it was agreed that student travel awards should be part of this budget.

7. ASL and GST: M.Hart noted that the ASL would not be directly affected because our income does not exceed $100,000. However, FASTS fees will increase as will postage, printing, phone bills etc. Thus a small increase in ASL fees will be needed: ordinary members from $35 to $38, student members from $17.50 to $20 and institutions from $40 to $45. These increases will be put to the next AGM.

8. Current financial situation: M.Hart reported that the society currently holds three investment accounts, two with the National Australia Bank ($19,568.35 and $18,000) and one with the ANZ ($22,176). The current account with the NAB has $519.

9. Y2K: no problems are foreseen with the society's computer or with the records held by the secretary. All important documents are held as hard copies.

10. ASL 2000: next year's congress will be held in July either in Darwin or somewhere close by. R.O'Connor and her team are still examining possible venues.

11. Newsletter: I.Growns reported that he had received much good material for the forthcoming issue. He raised the issue of giving members the opportunity of receiving an electronic version rather than a paper version. It was agreed that this item should be placed on the agenda for the next AGM.

12. Science meets Parliament: P.Horwitz was keen for the ASL to be represented at this opportunity for representatives of scientific societies to meet parliamentarians on Nov 24 in Canberra. After vigorous discussion the executive agreed that the society should be represented by a nominee who would profile ASL's position higher than other allegiances. It was agreed that the President would be the most likely person to do so, and that funds should be made available by the society to support the representation.

FASTS

"SCIENCE MEETS PARLIAMENT" DAY

Australian politicians do not fully appreciate the potential of science and technology to generate new industries, solve environmental problems, or help create a safe and prosperous country.

To counter this, FASTS is organising a direct approach to our Federal politicians on November 24. "Science meets Parliament" Day will be a day of consultation at Parliament House in Canberra, with pairs of scientists visiting MPs and Senators to press the central importance of science and technology to Australia.

Our plans include a major reception at Parliament House the night before so participating scientists can meet informally the MPs and Senators they will visit the following day. Tuesday 23 will be a briefing day to discuss strategies, tactics and issues to raise during the appointments. Senior Parliamentarians, their staffers, bureaucrats and professional lobbyists will advise participants on the most effective way to approach the interviews.

The event can only be a success if your Society is involved. We need outstanding scientists and technologists from around Australia to come to Canberra to talk to their Parliamentary representatives. Our Parliamentarians need to hear first hand accounts of good science, the opportunities this work creates, and how more of the benefits of research could be captured.

As well as having a chance to put the case for science directly to their Parliamentarians, participating scientists will gain new skills and knowledge in how to operate within the Parliamentary system. Parliamentarians need advice on science issues, and some of the contacts made on this day will develop into a continuing relationship.

Your first step is to nominate scientists. We are looking for enthusiastic and personable people who can present persuasive arguments to MPs, and who can apply the skills and information they learn from the Briefing Day both then and on subsequent occasions. Some groups are organising their regular meetings to take place in Canberra in that week, so that they can participate

The Day is based on the Science and Technology Congressional Visits Day in the US where in 1998, 200 scientists and engineers from 37 States made more than 215 visits to House and Senate offices to underscore the long-term importance of S&T to the nation. Forty nine professional societies and educational institutions took part along with 143 businesses. The scientist visitors were members of professional societies or educational institutions, or employed in S&T-based businesses.
Further information about the Congressional Visits Day is at:
http://www.agiweb.org/cvd/

There are costs involved. Each participating scientist and their sponsoring Society would be responsible for transport and accommodation costs. Each participant would also contribute a workshop fee of $150 to FASTS for costs associated with staging the Briefing Day.

Details are contained below, and you can get further information from the FASTS' office or your Board representative. It may also be possible to arrange a representative from FASTS to attend one of your meetings to answer questions.

"Science meets Parliament" Day will succeed if it is supported by the scientists and technologists from around Australia. It could be a most valuable and informative event, and help build on a groundswell of support for science and technology in Canberra. I look forward to your comments, and hope your Society can support the event.

Yours sincerely

Peter Cullen

DRAFT PROGRAM

TUESDAY NOVEMBER 23
At the National Press Club

9.00 AGM of FASTS (formal business only - elections, audited accounts)

10.00 Briefing
The issues: Several speakers: what FASTS is asking MPs to do

The response: Ministers, shadows: what participating scientists can expect

Lunch

The tactics: how to approach the interviews

The protocol: what to do in Parliament House

6.00 Reception at Parliament House

WEDNESDAY NOVEMBER 24
At the Academy of Science

7.30 Breakfast, last questions

8.30 Bus to Parliament House, assemble at front Forecourt for media event

9.00 Media event

9.30 Appointments with Parliamentarians

11.00 Launch of Policy Document at Parliament House

11.45 Further appointments with Parliamentarians

12.30 Return to Academy of Science for lunch, debriefing

2.00 Media conference at Parliament House FASTS and sponsors

THURSDAY NOVEMBER 25
At the Academy of Science
9.00 FASTS' Board meeting
REGISTRATION

We need to enlist over 100 scientists and technologists to meet members of the House of Representatives and Senate. Please choose carefully when selecting your scientist representatives, and take into consideration matters such as political nous, familiarity with issues, geographical spread, and gender and age balance. Enthusiasm, personality, and the ability to present persuasive arguments are also important.

Ideally these scientists should be drawn from electorates across Australia, so they can be matched to meet with their local Parliamentary representatives. Details of electorates where people have previously lived or worked will help us match scientists with appropriate MPs.

As well as having a chance to put the case for science directly to their Parliamentarians, participating scientists will gain useful new skills and knowledge in how to operate within the Parliamentary system. Some contacts made on this day will develop into a continuing relationship with Parliamentarians.

Please note that participating scientists will be needed in Canberra from 9 am Tuesday November 23 until about 2 pm Wednesday November 24.

The sponsoring Society or individual scientist will be responsible for travel and accommodation costs. The workshop fee of $150 payable to FASTS is for costs associated with staging the Briefing Day.

TO REGISTER, PLEASE SEND THE FOLLOWING INFORMATION TO FASTS:

NAME OF SCIENTIST:

ADDRESS:

PHONE: FAX:

EMAIL:

NAME OF NOMINATING SOCIETY:

ELECTORATE INFORMATION:

A. ELECTORATE OF RESIDENCE

B. ELECTORATE OF WORKPLACE:

C. ELECTORATES WHERE SCIENTISTS HAS LIVED OR WORKED PREVIOUSLY:

C1:

C2:

BEST MAILING ADDRESS:

CHEQUES
Please make payable to:
The Federation of Australian Scientific and Technological Societies, PO Box 218, DEAKIN WEST, ACT, 2600

CREDIT CARD:
Bankcard Visa Mastercard
Name of cardholder:
Card number
Expiry date:--/-- (These details may be phoned, faxed or emailed to FASTS)

A POSTCARD FROM THE FREE MARKET

AN OCCASIONAL SERIES BY TIM DOEG

RUNNING AWAY TO JOIN THE CIRCUS

I originally joined the Public Service as a limnologist to get as far away from the public as possible. Having worked in a shop during my formative years, I was always amazed at the demanding and often irrational attitude that the public has to levels of service. Take a breath before you start serving and you are slow and unresponsive, try to think of an answer to a question for a second and you are incompetent or arrogant. And the poor front-person in a shop is always bears the brunt for the late delivery of goods, shoddy workmanship, the level of unemployment and the state of the economy in general.

There was only one place to hide from this, and that was in the Public Service. Sounds odd, but there are vast numbers of public servants that happily spend their career without ever having met a member of the public face to face (actually, there are too few public servants at the moment due to slash and burn economic rationalism... but that's another story). So while some Pu'Ss (that's Public Servants in code) make monumental decisions on policy that affect the common man or woman, they have no idea what one looks like or what makes them tick. On the other hand, there are limnological Pu'Ss who can hide away in research institutions and happily avoid the public as well.

Every now and again, a member of the public slipped through the net. Due to failures in the filtering system at the switchboard, the phone would occasionally go and at the other end would be ... shudder ... one of them. "Hello, I've found a little black bug in my swimming pool .... Can you tell me what it is?" ... "Hello, I've just spilt 5,000 litres of pool chlorine down the drain ... is this a problem?" ... "Hello, I've found a frog in my fish pond ... can I catch it and keep it as a pet in a cardboard box?" "Hello, I've got silverfish in my cupboard ... what's the best treatment?" (the last one is a true call to the fish department where I once worked, along with another call about micro-fish, which should have been microfiche).

As a lone-consultant-for-hire, there's no way to avoid meeting the public on most jobs. But, to my shock and amazement, there are some times that meeting with the public can be an enjoyable and rewarding experience. And it is possible to educate and turn public opinion on limnological issues (Lesson 1: don't say "limnology", say "watery stuff". Oh, can I have my name change vote back please.) Here's one way to do it.

A few years ago, with my ex-colleagues Bill O'Connor and Steve Saddlier organised a freshwater field training day for Department of Natural Resources and Environment (NRE) staff. As the future of the Public Service in Victoria at that time was ... shall we say ... uncertain, we thought it was a good way to get our experience and freshwater management ideas out into the operators in the bush. At the coal face, as it were. We organised a group of 20 staff and took them out into the bush next to a river and over the day we did presentations on ecology and management and issues and fish and bugs. It was a roaring success and we have since then, done about 20 of these field days throughout Victoria (over about 2 years).

While originally designed for NRE staff, word got around and we have been invited by Catchment Management Authorities, Fishcare groups, Landcare groups, Waterwatch groups and angling groups to do our presentations. It got a bit out of hand for a while, rushing around, setting up, doing the "show", packing up and disappearing. So much so that we began calling it "The Freshwater Circus".

Doing stuff like this for NRE staff was easy. They were committed to the conservation of freshwaters and had at least a passing knowledge of the subject (gleaned from the plethora of reports and strategies that seem to come around). But when the first Landcare day was organised, it was scary. These were the public that I had spent so long avoiding. And it was an open invitation, not a carefully managed audience. (Actually, it was targeted at a number of landholders who did not really see the value of freshwater managers – and so were not so committed and might actually be antagonistic to the message, especially de-snagging and fencing and stock control issues).

You could pick them straight away. There will always be about 10 who gather round you. But there will be about 5 others, standing just separate at the back of the crowd, arms crossed, a slight lean back in the stance, staring at you, summing you up with a little "hrmph". Usually standing with a ringleader – a local landholder with fixed views on land management, but who the rest of his gang looks up to and values his views on things (and it's always a "him"). He's the one who cracks the gags during the circus. The hard nut.

Without going into detail, the Circus is still going. A number of nuts have been cracked (judging from the feedback we get). And we believe that our small efforts have contributed to progress in freshwater management in this state. So, here are 10 tips on how to do it.

1. Do it on site. Slides and overheads in a hall don't work. It's just talk, whereas pointing to a tree or a riffle works.
2. Have a number of speakers. We do it with three. Bill deals with fish and fish ecology and I talk about bugs and bug ecology. These are all tied into river health and river management issues. Steve talks about fish sampling with an array of sampling gear. Which leads to point 3.
3. Have an electrofisher and use it. It's the colour and movement part of the day. The promise of a half hour demonstration of fishing and looking at the fish that are caught will draw the crowd.
4. Have the electrofishing later in the presentation. Nothing worse than having them turn up to see the fishing, then ... "er, I have to go and mow the hay" and disappear.
5. Keep the group small. No more than 15 is ideal. Much more than that and split them up into two and do rotating talks. It needs to be close up and personal.
6. Keep it simple. This is not an insult to their intelligence. Don't use "macroinvertebrates" or scientific names, and if you have to say "biodiversity", just put a hint of a little sneer into the word as if you were saying "café latte middle class city pinko set."
7. Don't be afraid of broad generalisations. Nothing is worse than making a point, then discussing the 20 minor exceptions.
8. Keep it relatively short. Bill and I talk for about an hour each and Steve talks for about 45 minutes on fish sampling, then about an hour of fish sampling. We usually start at 10:00 and it's all over by 3:00. Have lunch organised.
9. Keep it cheap. Preferably get it funded from the catchment authority or conservation department or get the group to organise a grant. This means it is free to the people who turn up. And, most importantly of all ....
10. Catch bugs and have this relatively early in the show. They've all seen fish before, but the bugs really get them in. Jump in the river with a net and kick around. Put it in a tray and stand back. If it's a part healthy stream, there should be lots of bugs zipping around.

The bug catching is often the bit that gets the hard nut and his mates involved in the show. The 10 interested members will gather round pointing and making generally interested noises (but don't be shocked at squeals of delight and surprise) as you explain all the great adaptations to life in a stream (hydropsychids that spend all day fishing, mayflies that are flat for living on rocks – caddis flies in cases are a dream if you get them). The other 5 will still be at the back (more "hrmphs"). Gradually they will creep just a bit closer … then a bit closer … just a shuffle closer and the stance goes from a lean back to a slight incline forward and a raising of the eyebrows … and then one of them will point and say something like "what's that critter?" The two groups merge and you can start reeling them in.

And that's basically the story and the philosophy around the circus. Taking the gospel out to the public in a way that they can understand and in a form that they will remember (maybe not the individual words, but certainly the message). And you will often find that the public out there is not such a frightful group. We need to engage them in the debate and involve them in the solutions. But first, we need to educate them on the issues. We have found that the Circus is a very effective way to do this.

ANNOUNCEMENTS

FINALLY

AFTER MUCH DELAY AND FRUSTRATION
THE NEW ASL WEBPAGES ARE HERE !!!

for those of you yet to discover this, the new site is at http://www.asl.org.au.

The new site features:

- What is limnology?
- What is the ASL?
- What are the roles of the ASL?
- How do I join the ASL?
- Membership Application via the web is NOW HERE
- ASL Newsflash! (archives from the asl email list - I plan to make this automatically updated in the near future)

ASL Business
- Executive officers
- Regional executive
- Membership officer
- Newsletter editor
- Past ASL office bearers
- ASL Constitution

Advice & Information
- People to contact for advice and information on issues related to limnology
- How to subscribe to the ASL email list
- ASL Newsletter Vol37#1 March 1999.
- ASL Newsletter Vol 37#2 June 1999 will also have the latest newsletter up soon

Policies
- Wetlands Policy Document
- The Future of ASL Policy Document
- Dryland Rivers Policy Document

Congress Announcements
- The 1999 ASL CONGRESS REGISTRATION (the latest and a link to the NZ site)
- Student travel awards and prizes
- Upcoming Conferences, workshops & meetings

Related sites
- Listed Alphabetically

Members Pages

If you are a member of the ASL and have related information you'd like to see on the web, or a related web page, email (or phone / write to) the ASL webmaster and see it listed here!

Soon to come:

publications,
minutes of meetings,
media releases,

Any comments or suggestions can be emailed to me at webmaster@asl.org.au (or contact me at the phone / address provided below) Limnology related graphics (preferably in jpg or giff format) extremely welcome.

Simon Josey
Webmaster - Australian Society for Limnology
PO Box 1834
Fyshwick ACT 2609
ph (02) 6270 7670
fax (02) 6270 7696

POST-DOC POSITION IN LIMNOLOGY

AT THE YIGAL ALLON KINNERET LIMNOLOGICAL LABORATORY

Dear ASL'ers

Israel Oceanographic & Limnological Research (IOLR) is pleased to announce a Kinneret Postdoctoral Fellowship in memory of the late Admiral Yohay Ben-Nun, the Founding Director of IOLR, contributed by a Board Member of the North American Friends (NAF) of IOLR. Young scientists (recent graduates during the last 5 years) in limnology and aquatic ecology and relevant fields of research are invited to submit their candidacy for a two year fellowship to carry out basic or applied research in various aspects of biological, geochemical and physical limnology. Research will be carried out at the Yigal Allon Kinneret Limnological Laboratory of IOLR located on the shore of Lake Kinneret, and will focus on the Lake ecosystem. Interested candidates should submit a short curriculum vitae, a letter describing their scientific goals and objectives, and two references, not later than 15, October 1999 to: Dr. Assaf Sukenik The Yigal Allon Kinneret Limnological Laboratory, P.O.Box 345, Tiberias, 14102.

Details on the staff, facilities and activities of the Yigal Allon Kinneret Limnological Laboratory are available at the IOLR website
http://ocean.org.il.

from

Dr David Hamilton
Senior Lecturer in Hydrobiology
Department of Environmental Engineering
Centre for Water Research
University of Western Australia
Nedlands WA 6907 AUSTRALIA

NATIONAL WATER QUALITY MANAGEMENT STRATEGY

AUSTRALIAN & NEW ZEALAND GUIDELINES FOR FRESH AND MARINE WATER QUALITY

Call for Public Comment

The National Water Quality Management Strategy (NWQMS) is a joint initiative of the Australian and New Zealand Environment and Conservation Council (ANZECC) and the Agriculture and Resource Management Council of Australia and New Zealand (ARMCANZ).

The Australian Water Quality Guidelines for Fresh and Marine Waters, published under the NWQMS in 1992, is being revised. The review is being coordinated by the Environmental Research Institute of the Supervising Scientist (***eriss***), part of the Science Group of Environment Australia. A draft of the revised document has been released for a 3-month public comment period (20 July - 20 October), and ***eriss*** invites all interested parties to comment.

The main objective of the Guidelines is to provide an authoritative guide for setting water quality objectives that will sustain current, or likely future, environmental values for natural and semi-natural water resources in Australia and New Zealand. The established environmental values are aquatic ecosystems, aquaculture and human consumers of aquatic foods, agricultural water use, recreational water quality and aesthetics, drinking water and industrial use.

Limited printed copies of the overview document and volume 1, or the full suite of documents on CD-ROM, may be obtained from: Environment Australia, Community Information Unit, Freecall 1800 803772, Fax 02 6274 1970, email ciu@ea.gov.au.

The Guidelines may also be downloaded from Environment Australia's homepage (www.environment.gov.au; go to 'What's New'). Information sheets and 'commonly-asked questions' are available form the above address and website while copies of workshop powerpoint slides can be downloaded from the website.

Please put some time aside to prepare a submission!
(due 22 October 1999)

BIODIVERSITY FORUM: OUTBACK AND UPFRONT.

The first Biodiversity Forum which focusses on the western arid zones of NSW and adjacent states is being held in Broken Hill on September 17th, 18th and 19th.

The forum is aimed at landholders of the region - providing practical advice to those who are at the coal face of trying to preserve biodiversity - but scientists, managers and the general public should also find the forum a valuable experience.

Speakers include:
Nick Able CSIRO
Ian Lowe Griffith Uni
Annabel Walsh, landholder
Sue Briggs NPWS
David Lord, Landholder
Ben Gawne,CRCFE
Peter Gehrke NSW Fisheries
Jim Puckridge CRCFE
Virginia Angell, landholder
Martin Thoms, Uni of Canberra
David Butcher WWF

...amongst many others....

The forum is being organised by the Western Catchment Management Committee and the Lower Murray Darling Catchment Management Committee.

For registration details, contact "Conference Logistics" conlog@conlog.com.au
ph: 02 6281 6624
fax: 02 6285 1336

After years of extensive research, I have concluded beyond any doubt that I need more grants!

EUREKA PRIZES

The Australian Museum is proud to announce the launch of the 2000 Eureka Prizes, winners of which will be announced at a ceremony during National Science Week 2000. Your help in publicising the prizes, and passing this message as widely as possible, would be appreciated!

From their modest beginning in 1990, when three prizes were awarded, the prestigious Eureka Prizes have grown into Australia's leading national science awards. In 1999, eleven prizes worth $100,000 were awarded. The Eureka Prizes are a unique cooperative venture between the federal government, the NSW state government, educational institutions and a range of high profile private sector companies and organisations.

The Prizes raise the profile of science in the community by acknowledging and rewarding outstanding achievements in Australian scientific and environmental research, science communication and journalism, and the promotion of science. While the final lineup of the 2000 Eureka Prizes is still being finalised, the prospects are for a record number of prizes in this, the tenth anniversary series.

Entries and nominations are now invited for:

* The $10,000 Allen Strom Eureka Prize for Environmental Education Program
* The Australian Museum Eureka Prize for Industry
* The $10,000 Australian Skeptics Eureka Prize For Critical Thinking
* The $10,000 Environment Australia Peter Hunt Eureka Prize for Environmental Journalism
* The $10,000 POL Eureka Prize for Environmental Research
* The $11,000 University of Sydney Eureka Schools Prize for Biological Sciences.

Entries for all prizes (other than the Eureka Schools Prize) close on 11 February 2000.

Candidates can either enter themselves or be nominated by others.

Entry forms and full details of the 2000 Eureka Prizes are available at the Museum's webpage at http://www.austmus.gov.au/eureka or from

Roger Muller on 02 9320 6230.
Associate Director's Office
Australian Museum

ARTICLES

POLICY STANDING COMMITTEE

This newsletter marks the first report of ASL's Policy Standing Committee, formed after acceptance of the "Futures Document" at the last Annual General Meeting (1998 in Queensland).

The committee was formed by the Executive to coordinate the preparation and release of "appropriate statements on topical limnological issues", including policy documents, press releases, and submissions, and to consider the role that ASL members might play in these tasks.
The membership of the committee was set as the President, the Immediate Past President (or nominee), one State Representative nominated by the Executive, and two General Members of ASL. The Policy Committee would be operational for the term of the Executive.

Nominations for the two general members were called for via the listserver in April 1999, and appointments ratified by the Executive in May.

Membership	email	phone	fax
Dr Pierre Horwitz	p.horwitz@cowan.edu.au	08 9400 5558	08 9400 5070
Dr Max Finlayson	maxf@eriss.erin.gov.au	08 979 9756	08 979 2149
Ms Deb Nias	dnias@dlwc.nsw.gov.au	03 5021 9400	03 5021 3328
Dr Jane Growns	grownsj@mdfrc.canberra.edu.au	02 6058 2324	02 6043 1626
Mr Tim Doeg	crowdoeg@mail.mpx.com.au	03 9481 8130	03 9481 8130

Terms of Reference

1. To prepare and review priority limnological issues for consideration by the Society.
2. To develop and review volunteer list of contacts (members prepared to comments on a variety of limnological issues).
3. To develop and review media strategies for promoting policy issues.
4. To receive and collate responses on policy issues and evaluate policy activities.
5. Other tasks as directed by the Executive.

Tasks

The following tasks have been established for the Committee between now and the next AGM:
-Prepare a document which outlines the "top Ten" limnological issues facing Australia;
-Evaluate the operation of the ASL's "List of Experts";
-Commence the development of a media strategy.

Progress on some of these matters is outlined below.

Federal Inquiry

A submission was sent to the Federal Standing Committee on Environment and Heritage who are holding an enquiry into catchment management. The submission included a brief outline of ASL's expertise and interest, an offer for some ASL members to appear in person before the inquiry and copies of our 2 policies. We received a reply acknowledging our submission and that it will be published on the net linked to their home page at www.aph.gov.au/house/committee/environ/

List of Experts

A survey of the present ASL experts (from the list published in each newsletter) has been made to determine how extensively experts have been used and solicit suggestions for making it more effective. A summary of the results will be included in the next report from the Policy Standing Committee.

Development of a media strategy

Preliminary discussions with Karen Markwort (ex-CRCFE communications manager) have revealed that this is a complex area. It needs to be carefully thought about so that we can target areas of high priority, rather than trying to do everything at once. Expect further discussions on this over the email newsgroup and in the newsletter (time permitting).

Top 10 Limnological Issues

This task is moving forward with agreement that we need to first identify our target groups. At a broad level this has been divided into three subject categories that should provide an indictor to the target groups. These are:

1. Biophysical research - what are the critical processes (divided further on the basis of habitats) that require research over the next decade? This deals with the biophysical processes (taken to include chemistry) and could be sub-divided on the basis of habitats or the reality of jurisdictional borders.
2. Political and socio-economic factors - what are the critical underlying factors affecting management of our non-marine aquatic resources? This could take many of us outside of our 'normal' employment and intellectual bounds, but it is recognition that many aquatic scientists are now employed in policy and management agencies and not just research institutes of one guise or other.
3. Localities - what are the critical localities for further research and management activity? This could be, in part, derived from 1&2 above and will possibly raise some personalised preferences and could end up with some very jurisdictional related emphases.

This will be approached by delving into recent reviews of such materials and seeking comment from the sub-committee AND asking the ASL membership to provide input and list their preferred topics. Each topic will be accompanied by a short text. We will start by looking at the LWRRDC review of wetland R&D (for Category 1) and an in press Special Edition of the journal Wetlands Ecology & Management on the underlying reasons for the loss and degradation of Australian wetlands (for Category 2). The former is not strong on coastal systems, such as mangroves, but the latter does include them. The issue of our 'bounds' will develop as we progress with this exercise.

Please provide any listings and key references or
documents to Max Finlayson (eriss, Locked Bag 2, Jabiru, NT 0886)

DO YOU WISH ASL TO CHANGE ITS NAME?

A REPORT ON THE VOTE BY THE ASL EXECUTIVE

NAME CHANGE SUB-COMMITTEE

Well, we appear to be very divided on this issue. The results are as follows:

1. I wish the name of the society to remain the "Australian Society for Limnology"

132 votes

2. I wish the society to change its name. (Please vote again in Part B below)

116 votes

3. Unsure.

6 votes

Part B: If you voted 2. above please circle (or otherwise clearly indicate) one of the name options below:

A. Inland Aquatic Science Association (IASA) - **12 votes**

B. Australian Society for Aquatic Science (ASAS) - **86 votes**

C. Rivers, Estuaries and Wetlands Society (REWS) - **11 votes**

D. Australian Society for the Study of Inland Waters (ASSIW) - **20 votes**

E. Aquatic Australia (AA) - **3 votes**

F. Other (please suggest name) - **14 votes**

Names suggested in Category F. were predominantly variants on

Aquatic Science in Australia or Inland Aquatic Science/Waters including an "Australian Aquatic Science Society" who questioned their own suggestion on determining the acronym. Others included Australian Freshwater Association and Limnology Australia.

A few people included comments with their vote. Some rather lucid. In terms of names, there was some concern that "inland" waters excluded coastal wetlands, that "aquatic science" also included the marine environment which was considered inappropriate. Although from the votes above, the term Aquatic Science was by far the most preferred option from people who did and did not wish the name to change.

There was support for public education of the term "limnology" and the role of our society in Australia. One suggestion from Fiona Balcrombe was "to add a "marketing" type statement to the name, for example:Australian Society for Limnology..... knowledge and scientific research of Australia's inland waters.

RECOMMENDATIONS TO THE AGM :

The ballot on the name change issue was formative, not deciding, and was to be used to frame a recommendation to be taken to the AGM. At the AGM, according to ASL's constitution, a requirement is for 75% to vote in favour of the recommendation for the vote to be passed. Therefore, the recommendation should reflect the opinion gauged in the ballot.

As the constitution calls for a 75% majority in a vote and this was not obtained in the ballot, the subcommittee is required to recommend that the status quo is maintained.

Based on information gathered by the ballot and according to the ASL constitution, the recommendation by the subcommittee on whether ASL changes its name is:

1. The name of the society should remain the "Australian Society for Limnology (Inc)."

To further reflect the opinion gauged in the ballot, the subcommittee proposes two other recommendations:

2. That a "catchy marketing-type statement" be added as a subtitle to the name of the society. The executive to be empowered to develop an appropriate phrase, with due reference to the wishes of the members.

3. That the executive be charged with finding the most appropriate means for promoting the term "limnology" to the public, heightening awareness of our role as a society.

ASL Executive Name Change Sub-committee

(*See item 3 of the ASL Exec Minutes and the Presidents report to see what happens next–ED*)

A TASTE FOR TADPOLE

One of the oldest methods of biological control--introducing mosquito fish to eat disease-carrying mosquito larvae--is spawning an environmental disaster. It turns out that the fish prefer eating tadpoles, and this may be a leading cause of the crash in amphibian populations round the world.

"Exotic predators are one of the top three causes of amphibian decline, and mosquito fish are one of these major predators," says Lee Kats of Pepperdine University in Malibu, California. He calls use of the fish "archaic" and says it needs to be re-examined.

Mosquito fish (Gambusia affinis) are native to the US and Mexico. Since early this century governments in the US, Hawaii, Canada, the former Soviet Union, New Zealand and Australia have introduced the fish to exploit their appetite for mosquito larvae.

But Kats suspected that the fish also have a taste for other delicacies. In 1996, he showed that they eat the larvae of the California newt (Taricha torosa), but critics said the studies revealed little, as the newts were the only food on offer.

So Kats and his colleague Jeff Goodsell tested whether the fish eat amphibians when mosquito larvae are also available. They placed two mosquito fish in tanks containing either mosquito larvae, tadpoles of the Pacific treefrog (Hyla regilla), or a mix-ture of the two with twice as many larvae as tadpoles, to replicate natural conditions in Santa Monica's rivers.

The fish had completely undiscerning tastes. They munched their way through all mosquito larvae and tadpoles in the single-prey tanks and also finished off the mixed tank, gobbling up tadpoles and mosquito larvae in no particular order (Conservation Biology, vol 13, p 921).

Recreating the experiments in rivers showed that wild mosquito fish actually have a preference for tadpoles. Around 65 per cent of stream-caught fish had tadpoles in their stomachs, but only 56 per cent had mosquito larvae.

In the Santa Monica area, numbers of Pacific and California treefrogs, and California newts, may be declining because they haven't had time to evolve defences to mosquito fish. Kats believes that the same is probably true for amphibians elsewhere. California treefrogs are already being considered for protected status.

Kats adds that in many places the fish are given out freely to the public to distribute, and they often end up in areas that don't have a mosquito problem. "These fish are still being used. It's not a one-time mistake, it's an 80-year mistake," he adds.

However, mosquito control expert Chris Curtis of the London School of Hygiene and Tropical Medicine cautions that alternative methods of mosquito controls, such as insecticide spraying, may be just as environmentally damaging. "We have to be careful about downgrading what is a pretty useful control," he says.

from New Scientist

SUSTAINABLE RIVERS: THE CAP AND ENVIRONMENTAL FLOWS.

In response to an audit of water use the Murray-Darling Ministerial Council set an interim Cap on water diversions from the rivers and streams in the Murray Darling Basin. This decision was later confirmed as a permanent Cap on diversions, effective from July 1997.

In setting the Cap, the Ministerial Council determined that a balance had to be struck between the economic and social benefits obtained from the consumptive use of water on the one hand, and environmental uses on the other. From its inception, a primary aim of the Cap was to ensure the ecological sustainability of the Basins river system.

In some regions of the Murray-Darling Basin, implementation of the Cap has changed both the security and volume of water available for consumptive use. There have been calls by some water users that the Cap unfairly penalises them. Arguments over the appropriateness of the Cap became highly politicised in the lead up to both the 1998 Federal Election and the 1999 NSW State Election. These arguments regularly confused the role and operation of the Cap with other water reforms taking place, including the provision of environmental flows. It became apparent during these debates that there was little information, in form easily accessible to the broader Basin community, about the science underpinning the Cap and need for environmental flows.

In an attempt to explain need for a Cap and also for smarter flow regimes, John Whittington and Terry Hillman from the CRC for Freshwater Ecology produced a small booklet titled *"Sustainable Rivers: The Cap and Environmental Flows"*. Released a little over 6 months ago it has been widely circulated throughout the Basin. The brochure is written in plain English and targets the broader Basin community. Copies are still available, free of charge, from the CRC for Freshwater Ecology, GPO Box 921 Albury, NSW, 2640.

EGGS - SOME OLD LETTERS TO NEW SCIENTIST

SIR--Told recently that one could throw an egg over a house and that provided it landed on the grass, it would not break, I determined to put this to the test.

The egg went at least 10 ft above a 30 ft house and did, on both occasions, land without breaking. When, however, I rolled it off my hand (the egg was on its side) on the same piece of lawn, it broke, and this from a height of about 3 ft 6 in.

I wonder if one of your readers can explain this phenomenon.

M. H. Griffiths (11 August 1960)

.....

SIR--Perhaps I might essay an explanation of M. H. Griffiths's "Egg over a House" problem.

Examination of the physical structure of an egg demonstrates clearly that it is designed for atmospheric flight, with precautions against damage under conditions of abrupt deceleration. This is perhaps an evolutionary relic of a period when eggs were laid on the wing, before the present decadent habit of nest-building developed.

The external form of an egg is a perfect example of streamlining, which affords minimum air resistance and maximum aerodynamic stability when the egg is travelling through air at subsonic speeds. Internally, we find a chamber filled with readily compressible gas, at exactly the point where it is required to combat the deformation caused by the impact of the leading end of the egg on the grass. The remainder of the contents of the egg are not homogeneous, but consist of a spherical mass, the yolk, suspended by elastic supports in a viscous medium of lower density. This arrangement, providing both the viscous and elastic damping, is ideal for the dissipation of the energy of impact.

Mr Griffith's failure with an egg dropped from 3 ft 6 in. is amply explained by the fact that, with such a short drop, there was insufficient time for his egg to assume its correct flight orientation, or for internal equilibrium to be established. This failure is hardly surprising, for what bird would ever lay an egg sideways from a mere 3 ft 6 in?

H. G. Morgan
(25 August 1960)

.....

SIR--As a result of certain experiments which have been carried out, the undersigned research team can state the following results.

Eggs which land on a gravel path break instantly whether they are thrown over a house or not. Eggs which land on a dry lawn from a height of approximately 10 metres also shatter on impact. Eggs which fall on a wet lawn with longer grass from approximately the same height also break. We found no difference between "fresh farm eggs" and those bearing the national mark.

Having run out of experimental material we were not able to extend our tests but we have reached the following conclusions.

Bull terrier bitches aged approximately eight years will eat raw eggs found in long, wet grass (and on gravel paths) with avidity. Raw egg running down the face of a newly painted stucco house is not decorative, and eggs hard-boiled at a temperature of approximately 80 °C also shatter on impact.

John Vinden, Vivienne Vinden, Andrew Low, Barbara Low
(25 August 1960)

.....

SIR--After failure and a second egg landing in a hedge, my third egg went aloft to a height of about 35 ft, landed on the lawn, bounced and remained intact.

Having had one success, I thought it necessary to investigate the cause of the failure of the first egg. The curious thing about that first egg was that it contained no yolk, and having observed the flight of the eggs very closely, I have come to the conclusion that the yolk plays a most important part in ensuring the safety of the egg upon landing.

The eggs I chose were rather long as egg shapes go, so if they were going to orientate themselves in flight they would have a better chance to do so. Not being a very good lobber, though, the eggs were spinning quite a bit as they travelled through the air and were still doing so upon impact with the ground.

It is said that the strongest points of an egg are the ends, especially the sharp end, and yet as far as I could see, both the eggs which landed on the lawn landed on their sides--i.e. the weakest parts. The first egg, which had no yolk, smashed completely; the second, which did have a yolk, simply bounced, even though it went about 10 ft higher.

I can offer no explanation for this; I'll leave that one for the egg experts (only those well up in the art of throwing them), but it seems to me that the yolk contributes greatly to the safety of the egg upon landing, though can you call an egg an egg if it has not got a yolk?

B. Johns

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CONFERENCE CAPERS

October 11-16, 1999 – International Conference on Tropical Aquatic Ecosystems Health, Management and Conservation, Nainital India, presented by the International Association for Limnology (SIL) and Aquatic Ecosystem Health and Management Society. Contact Dr Brij Gopal, School of Environmental SciencesJawaharial Near University, New Delhi 110067, India. Email NIE99@hotmail.com.

October 24-28, 1999 – Wise Water Ways: A Short Course in Stream Management Principles and practices. Beechworth NSW, Contact Paul Coope or Lachlan Campbell on (03) 5721 0200

November 11-19, 1999 FishRights99 conference - Use of property rights in fisheries management: Fremantle WA. For more information go to: http://www.fishrights99.conf.au

November 16-17, 1999 – Wetlands and Remediation: An international conference, Salt Lake City (USA), presented by Battelle Memorial Institute. Contact Karl Nehring, email NehringK@battelle.orh

January 16-23, 2000IXth Int. Symposium on Rotifera: Khon Kaen, Thialand,. Contact Laorsri Sanoamuang at the Univ. of Khon Kaen. Email: La_orsri@kku.ac.th

February 1-5, 2000 - Species 2000: New Zealand (millenial symposium to inventory all NZ biota). Museum of NZ, Wellington. Contact Dennis Gordon at NIWA. Email: d.gordon@niwa.cri.nz

April 9-13, 2000 – Odour, How much is too much. Four conferences in one: Australian Greenhouse Conference, 5th Australian Waste Convention, Odour Conference and WaterTECH Conference. Sydney, contact Clean Air Scociety of Australia and New Zealand, casanz@ozemail.com.au

July 3-7, 2000 - New trends in water and environmental engineering for safety and life: Eco-compatible solutions for aquatic environments, Capri, Italy. Contact Terr@A. Dept. IIAR, Hydraulic Div. Politecnico di Milano, Piazza L. da Vinci 32, 20133 MILANO (ITALY), Fax +39 02 23996298, Ph. +39 02 23996293, E-mail:terra@marina.iar.polimi.it

FURTHER IN THE FUTURE

28th International Association of Theoretical and Applied Limnology (SIL): February 2001, Melbourne, Australia

29th International Association of Theoretical and Applied Limnology (SIL): August, 2004. Helsinki, Finland.

I'VE BEEN TO .....

RAMSAR WETLANDS CONVENTION - COSTA RICA, MAY 1999

The 7th meeting of the Conference of the Parties to the Ramsar Wetlands Convention met in San Jose, Costa Rica from in May 1999. Australia was represented by - Stephen Hunter (Head), Brendan Edgar & Liz Thorburn from the Environment Australia Biodiversity Group; Max Kitchell from Tasmania, as Chair of the ANZECC Standing Committee on Conservation; Michele Handley from WWF-Australia as the non-governmental representative; and myself as a technical representative. Daniel Tinan from the Australian Embassy in Mexico City participated for part of the Conference.

The conference was opened by the President of Costa Rica, Dr Miguel Angel Rodriguez following statements by Delmar Blasco (Secretary General of the Ramsar Convention), Dr Maritta R von Biebersteun Koch-Weser (Director General IUCN) on behalf of the Convention's international NGO partners (IUCN, WWF, Wetlands International, Birdlife International), and Dr Elizabeth Odio Benito (Minister of the Environment, Costa Rica) and a message from Mr Federico Mayor Zaragoza (Director General of UNESCO).

The inaugural Ramsar Conservation Awards were presented to Professor Vitaly Krivenko (Russia), Victor Pulido (Peru), Lake Naivasha Riparian Association (Kenya), Society for the Protection of Prespa (Greece) and Pacific Estuary Conservation Program (Canada). It was great to see friends from Russia and Canada receive the awards.

The political issues covered an array of situations. First was the inadvertent registration of a Taiwanese NGO without approval from China. The placement of Israel in the Asian group of contracting parties was objected to by a number of countries. A compromise was reached where Israel was assigned to the Asian group but immediately sought approval to join the European group under a new ruling that enables countries near the periphery of a region to seek membership of an adjacent region, given certain biogeographical similarities. This situation led to the first voting decision within Ramsar. The Argentines made various interventions about references to small island territories. And a resolution was passed on the situation of Yugoslavia within the Convention. The politicisation of the meeting was taken as an indication that wetlands and hence the Convention were being taken much more seriously by national governments.

And next came the budget debate. This too took up much time with extra-sessional meetings being called. Basically, several large states were opposed to any increase in dues. There was also a question of a minimum due that actually covered the Bureau's costs in providing basic services to member states. The details of the consensus decision were confusing with several versions being presented to the plenary before an agreed written statement was produced.

With all that out of the way the technical issues were raised and various recommendations made. These included: invasive species, inventory, peatlands, management planning, wise use and water management, international cooperation, wetland risk assessment, boundary changes, training centres, local communities and so forth. It was a particularly heavy and at times detailed program with much to offer Australian wetland managers and researchers - see the Ramsar web page - www.ramsar.org - for copies of all final resolutions etc.

The Australian draft resolution to permit changes to Ramsar site boundaries caused much activity in the corridors with NGOs being concerned that it could be misused by unscrupulous parties. This was complicated by a move to combine several Netherlands resolutions with this one. A vastly changed resolution was finally negotiated and accepted which enabled Australia to enact several specific case studies on boundary changes.

Technical sessions were undertaken by invited plenary talks and then regional discussions and redrafting of the resolutions before resubmission to the plenary. I presented a talk on Wetland Risk Assessment and Early Warning Systems as the basis of a resolution seeking to provide better assessment and planning for monitoring programs. Nick Davidson from Wetlands International presented a report co-authored with myself on a Global Review of Wetland Resources and Priorities for Inventory. This basically stated that despite much inventory effort we could not put a figure on the extent of wetland coverage let alone status and trends.

The resolutions on water and wetlands, local communities and wetland management, and alien species are topical for Australia. That on water raised issues of water allocations and environmental flows, including cross-border cooperation. This indicated a greater realisation that water per se was a major international issue and inseparable from wetland management issues - see Ted Hollis' paper in the McComb & Davis edited proceedings for the 1996 INTECOL wetland conference. The resolution on local communities had previously been much changed and was not universally seen as completely acceptable by local comminutes due primarily to perceptions about consultation rather than overt objection. A few parties expressed concerns over giving more recognition to the rights of indigenous people. The resolution on alien invasions was indicative of a greater appreciation of problems that we have struggled with for years.

The Convention's Scientific and Technical Review Panel was expanded from 7 to 13 representatives - 3 African, 3 Neotropical, 3 European, 2 Asian, 1 North America and 1 Oceania. This panel is expected to provide further technical comment on many of the resolutions accepted at the conference. In doing this it will now be formally assisted by national focal points, nominated technical groups and the Convention's partner organisations. As the Oceania rep I'll keep you updated and welcome comment/input - see the complete set of documents on the Ramsar web page.

So, that is a brief personal overview. It's a big forum. It is political. It includes NGOs and technocrats. It is strident. It is civilised. And some one even said it was fun. Importantly, it provides a clear indication of what governments consider important in the realm of wetland management - this may provide a shock for some scientists! But there is a way of influencing this ..... given time, effort, cooperation with relevant officials, opportunism etc..... and targetted lobbying by the new (renamed?) recharged ASL.

And thanks to my colleagues on the delegation. And to my colleagues in Wetlands International who also provided much support and as many hilarious moments. And to the Ramsar staff and their co-workers, and the host government.

Max Finlayson
Manager Wetland Ecology & Conservation

BOOK REVIEW

Next issue: A review of Wetlands For The Future (Contributions from INTECOL'S International Wetlands Conference) Edited by A.J. McComb and J.A. Davis

GOANNAS: THE BIOLOGY OF VARANID LIZARDS

DENNIS KING AND BRIAN GREEN

Australia has produced more than its fair share of out-standing general herpetological texts in the last 20 years, and this is another one. There are innumerable publications of symposia, conferences and proceedings which consist of disconnected chapters by different authors, each concerned with their own work. Alternatively there are plenty of good keys, species lists, and identification texts. Whilst these types of publications give the state of the art research or taxonomic and distribution status, they do not provide an overview of the biology of the group of animals in question. Here, King and Green redress this issue by developing a general easy-to-read, all-encompassing view of an extremely interesting group of lizards, the goannas.

Following the pattern of other great Australian herpetological texts, such as Heatwole's *Reptile Ecology*, or Bradshaw's *Ecophysiology of Desert Reptiles*, King and Green have linked the ecology, reproductive biology, behaviour, physiology and conservation of the varanids. They use the scientific literature, but do so in a way that makes the information easily accessible to a general audience (including the not-scientifically-trained audience). The coverage of these topics is broad and thorough, although I would have liked to see a little more on sensory perception (especially vision and hearing) and on learning and behaviour (it was amazing to me to discover that goannas can count to 6!). Some sections were especially well done, including the mechanism behind how the tongue works, and the chapter on conservation.

King and Green chose to focus on one particular varanid, *V. rosenbergii*, as the "type" goanna and this animal was the central theme of the book. Selecting a particular species to demonstrate characteristics common to a group worked well in other texts of this type (eg *Amphibolurus (Ctenophorus) nuchalis* in Bradshaw's book). Whilst this generally worked well here too, the authors did not consistently stick to the theme, and often wandered into listing all the species observed to perform a particular act. I find lists of species at the start or finish of a sentence makes the discussion point a bit obscure, and this might put off some readers. Some parts of the book were also a bit verbose and overwritten (for example the Breeding section) and generally the book would have benefited from better editing. Also the "Further Reading" list contained a lot of very old papers. While these papers may be foundation papers in the field, I do not think it is appropriate to send off enthusiastic young herpetologists to dig up papers more than 30 years old. Much of the information may be inaccurate now, and also old papers suggest that the field has not progressed very far, which is obviously not the case. My only other criticism is that the cartoon man in figure 1.2 is too eerily like one of the authors!

This is an excellent text about really interesting animals, written by Australia's leading enthusiasts. The book is a must for herpetologists, especially young or amateur lizard lovers.

Christopher Daniels
Department of Environmental Biology
University of Adelaide

SEA SNAKES BY HAROLD HEATWOLE. AUSTRALIAN NATURAL HISTORY SERIES, UNIVERSITY OF NEW SOUTH WALES PRESS. 1999. 148 PP.

Professor Heatwole has been interested in sea snakes for over 30 years and has summarised most of his interests in a small volume aimed at the general audience. The coverage is broad, ranging from the recent phylogenetic classification, distribution, natural history, feeding, enemies, population ecology, osmotic regulation, diving physiology, venoms and relationships with humans. The book is a revision of his 1987 edition which went out of print.

The reader will be entertained with a range of amazing adaptations that are peculiar to marine snakes: valved nostrils, flattened tails, potent venom, unique salt-secreting glands, light-sensitive tails, body wall piercing with fish spines, and breathing through their skin. Much of the book's content relates to Heatwole's experiences and research projects, and in many cases he introduces his personal memories of the work. For example, he discusses his first attempts to get to the Great Barrier Reef to study sea snakes, reveals that he forced snakes to wear condoms during osmotic studies, and shows a photograph of a sea snake bite on his own finger. However, in a few cases, his memory of the same incident is different from mine, but the result is nevertheless interesting.

The longest chapter concerns the physiological adaptations for diving. Unlike marine mammals, the sea snake at first appear to have few adaptations for diving—sea snake blood does not carry extra oxygen, and there is no "diving response", indicating that the dives are aerobic. Part of the ability to prolong dives involves exchange gas through the skin which also protects them from decompression sickness (the bends). The information in the chapter is basically accurate, but sometimes credit for the discoveries is misapplied or not mentioned at all.

The final chapter relates to interactions of sea snakes and humans. The appalling exploitation of sea snakes for leather, medicines, food and as by-catch in prawn trawling is disturbing. On the other side of the equation is the extreme toxicity of sea snake venom (some species produce enough venom in a single bite that could kill over 50 humans) and a fairly high incidence of sea snake bites and fatalities among fishermen in coastal Asian countries. Although there have been no deaths in Australia, the book contains recommendations for medical treatment, which is comforting.

This book will be interesting mainly to those herpetologists who fancy snakes, but also to marine ecologists who will appreciate the role of marine snakes in tropical ecosystems. While it is not comprehensive in its treatment of sea snakes (the known bibliography extends to about 2500 references), it does cover most aspects of their biology. It is noteworthy for limnologists, that freshwater snakes and some estuarine species (even those closely related to sea snakes) are not included in the book.

by Roger Seymour

THE GLOBALIZATION OF ECOLOGICAL THOUGHT. MOONEY, HAROLD A. (1998) ECOLOGY INSTITUTE, OLDENDORF/LUHE, GERMANY. KINNE, O. (ED.) EXCELLENCE IN ECOLOGY BOOK 5, XXIV + 153 PP. PRICE DM59.

This another volume in the series of thoughtful tracts written by winners of the Excellence in Ecology prize awarded in yearly sequence to eminencies in freshwater, marine and terrestrial ecology. This one is an early terrestrial winner, delayed because of the author's obviously busy schedule. Previous volumes have given real insights into the way leading practitioners approach their subject matter – I'd highlight ones by Bob Paine and Rob Peters in particular – so I was looking forward to reading this on

Unfortunately, Mooney devotes most the book to demonstrating that ecology is now gone global because several sets of overlapping identities interact over "big" subjects like global climate models, primary productivity at the biome level, and similar large-scale issues. Definitely big-E environment stuff. He makes a laudable attempt to share the credit for this progress by naming many key officials within these co-operative ventures (even including photo portraits!) – again this gets to be tedious, a bit more like name-dropping than scientific reporting. He pays considerable attention to the institutions aiding or formed by such individuals – mostly organisational umbrellas, with no separate or extra funding, that necessarily divert the scientific resources of each nation contributing their ecological leaders and a voice.

Mooney's place at the centre of such developments is unquestioned. As John Harper points out in a laudatory sketch, he has spent nearly 40 years researching many aspects of plant ecology from ecophysiology up to satellite perspectives. He has trained many other leading terrestrial researchers and his links to the rest of the movers and shakers of this new "global ecology" are plain throughout the book.

So what's in it for the average Australian limnologist puddling around in stream, lake or billabong on the other side of the globe? Despite surface waters being major features of most continents, they don't get mentioned very often, except perhaps as another feature of the landscape to be modelled if not ignored. A cynic would say that our hearts should glow to know that all those excellent scientists get to meet to make up programs concerned with our changing atmosphere, ocean and biota. A less jaundiced view is that these spokespeople are exploring our concerns with rising CO_2, nuclear winter, altered biodiversity (even before we know its there), and wayward biogeochemical cycles. But I had to ask exactly what was achieved from all of this frantic meeting, position-paper writing and interfacing with government. It would be disheartening if such an international perspective actually weakened the support for limnology within the waters (= on the ground) of a country like Australia (with too much territory and environmental problems but too few limnologists).

One message that is clear from the book is the rapid rise of data collected at big scales but now available on a desktop near you. If Mooney is right then we may all end up soon using the outputs of satellites, various remote sensors, mega-models, stable isotopes and others tools in this "global observing system" Almost makes you wonder where those of us with a net, water sampler and wet feet are going to fit in.

The chapter of most direct interest to limnologists is entitled "rearranging the Earth's biota". This is the only part of the book where inland watery case studies get much of a mention. The usual

suspects get rounded up for the case studies, including some freshies like zebra mussels, opossum shrimps, and our own export, the paperbark. Generally, Mooney's recommendations are sound and based on a realistic reading of the situation now and challenge ahead.

By now, you probably think that your humble reviewer did not get a hell of a lot from this book. That might be a bit unfair to the author and his chosen task – he generally delivers what he intends. It's just that if the trend globalisation both culturally and economically leaves you to feeling cheated, then you may also be less than thrilled by Mooney's central message that a growing portion of ecological endeavour will also be going global. In all, I doubt that this is a book for most limnologists to have on their professional bookshelves.

Peter Fairweather
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AUSTRALIAN FRESHWATER ECOLOGY. PROCESSES AND MANAGEMENT.

ANDREW J BOULTON AND MARGARET BROCK, 1999. GLENEAGLES PUBLISHING, GLEN OSMOND, SOUTH AUSTRALIA. 300 PP. 12 CHAPTERS. RRP $55.

Australian students of inland waters have had access to few texts written over the last two decades which adequately represent the complexity of the Australian aquatic environments. *Australian Freshwater Ecology* will undoubtedly bridge that gap.

For the context and justification of the book, look no further than the Acknowledgments and the Preface sections, where statements of explicit biases will be a clear guide to any reader. This book displays a passion for Australian wetlands and highlights a need to improve their plight, offering detailed scientific explanations rarely seen in multidisciplinary university courses. The book lacks the arrogance of know-it-alls; instead it elevates the Australian inland aquatic scientific community to co-author status, with 68 contributing guest authors providing 79 boxes of text. These are embedded within Boulton and Brock's experiences, and their compilation of recent and relevant Australian works.

In the Preface, the authors draw the reader's attention to the "*...meteoric rise in pure and applied research in aquatic ecology in Australia since the mid-1980s...*", evidenced by national schemes to increase the aquatic database, the considerable advances made in taxonomic knowledge, and the widespread acceptance of total catchment management concepts and community surveillance programs. A more holistic field of ecology is perceived, influencing management of aquatic systems away from the engineering approach of ensuring water quantity, toward one focusing on the improvement of water quality. Part of this trend, the authors proclaim, is to recognise the importance of water regime, processes in aquatic systems, and the "*intimate linkage between catchments, groundwater and wetlands*". The authors "*... integrate processes and management, recognising the necessity of rigorous science to underpin flexible and adaptive management.*"

To established researchers in the field these perceptions will ring true, even if only to affirm current trends in Australian inland aquatic praxis, and their utterances of "at last" will be audible across the continent. The book is organised accordingly, where the *consequences* of climate, hydrology and scale are covered in the first part.

The largest part of the book covers the *consequences* of depth and water circulation in standing waters, the *consequences* of flow in running waters, and the *consequences* of presence or absence of water. For each of standing water and running water, the authors prepare an exposé of physical, chemical and biological processes in separate chapters. Within each chapter the breakdown continues. For instance in Chemical Processes in Standing Waters, the chapter progresses under the headings of: dissolved gases, oxygen, stratification, carbon dioxide, hydrogen, methane, ionic composition, salinity and total dissolved solids, some common anions, some common cations, the importance of redox potential, some metals, macronutrients and nutrient limitation, eutrophication, phosphorus, nitrogen, dissolved organic matter, all in 23 pages. This breakdown is designed to present to the reader the components of aquatic systems in a thematic approach rather than the structural, component-based approach of previous well-known texts.

The third part of the book deals with applied aspects: water issues, catchment issues, and integrating ecology with management. Australian examples are used throughout, and the management issues covered include nearly all those you could possibly imagine (simply too extensive to cover here!). An interesting presentation in the final chapter is an overview of the administrative aspects of research, monitoring and state of environment reporting in Australia.

The page layout is busy, with clever use of boxes to draw the reader's attention to an issue relevant to the proximal text. Summary tables are frequently used. The many figures are clear and valuable, diagrammatically depicting consequences and influences in, and the dynamic nature of, aquatic systems by using arrows of varying widths and sizes (a little overdone at times - on one figure I counted 32 arrows). Black and white photographs are included on most pages, all of them in postage stamp size categories (which does little justice to pictures of habitat and landscape).

The authors have provided us with a reference text, a book that includes a glossary of 257 words, terms, phrases and abbreviations, plus a list of all contributing authors and their contact addresses. The bibliography contains over 400 references, a significant proportion of them produced in the last 10 years, and dominated by Australian works. The index is thorough, 18 pages in length. The success of this book will hinge on these structures; one of the drawbacks of a thematic approach is that those of us still languishing in reductionist limnology will need good footholds to find out about components of inland waters.

The book covers the breadth of the inland aquatic sciences by introducing topics to the reader in the context of integration. It has sufficient detail to adequately challenge the good senior undergraduate, to inform the postgraduate student, and to use as a reference text in professional employment. In short, whether as a student, researcher or practitioner, this book is a "must buy".

by Pierre Horwitz

AQUATIC AND WETLAND PLANTS: A FIELD GUIDE FOR NON-TROPICAL AUSTRALIA.
NICK ROMANOWSKI, UNIVERSITY OF NSW PRESS, SYDNEY. 1998.

My first impression of this book was very favorable. It is attractively packaged, with a picture of both subtle and showy wetland plants on the cover. The book is arranged with an introduction to wetland types and the concepts of 'native' and 'exotic' as Romanowski sees it, then launches into families of aquatic flowering plants and ferns. The families are arranged alphabetically from Apiaceae to Zosteraceae, and the genera are listed within the families. As you can see, some of the salt-lake dwelling sea-grasses are included. There is discussion of the most common and attractive species within the genera, and pictures of a large number of them. Descriptive information is given with a view to identifying species and plain English is used throughout. The book finishes with a small glossary, a list of useful references, and an index of both botanical and common names. Romanowski keeps the use of common names to a minimum, a practice which is to be commended. It seems pointless to me to introduce a common name to an unsuspecting public when the scientific one is so much more useful. The text displays an extensive working knowledge of aquatic plants, gained by Romanowski over many years in the aquatic plant trade. The only algae mentioned are charophytes, and there are photos of some that occur in Victoria, with the mention that they are too difficult to identify to species, even by experts (I can hardly argue with that one!).

Most of the photos are excellent, clearly displaying the features of the species, and they are a useful tool for identification. However some photos are washed-out, too far away or indistinct. Unfortunately some of these illustrate the difficult species in Cyperaceae and Juncaceae. I'm familiar with most of the species so I could recognise the plants from the illustrations, but most inexperienced users of the book would give up, or make a mistake. There is no key to the plants in the book, either plain English or pictorial, so a novice would have to flip through the book to find a picture of what they wanted to identify. A bit tedious, and difficult if what you have is a monocot.

I have a couple of personal quibbles about the book, firstly Romanowski sits on the fence about native and exotic species. There is no indication as to which are exotic unless you read the whole section on species. The author has done this on purpose, he says, because to indicate clearly 'would give a misleading impression of the state of our knowledge'. Personally I would prefer to err on the side of caution when it comes to exotic species. The blurb on the back cover was also a bit misleading claiming that the book is 'the first in more than 15 years to describe the aquatic and wetland flora of the temperate zones of Australia', but I can't blame the author for that (he references Sainty and Jacobs 1994 inside), it is probably the publishers lack of knowledge.

All in all this is an attractive book with some very handy sections (the discussion of the identification of *Myriophyllum* species is practical and based on the authors extensive experience). It's a good size and sturdy enough to throw into a back-pack for a trip to a wetland, and reference to the bibliography would assist in dealing with the difficult monocots. If you know nothing of the inland aquatic flora it would be a useful introduction, particularly in providing a choice of plants for planting in an ornamental pond. However, I can't give this book my wholehearted recommendation for the reasons listed above.

Michelle Casanova
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The following people have volunteered to speak as experts on behalf of the ASL. If you wish to be included on the list contact:

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The following members are prepared to speak on behalf of the ASL on their area of expertise.

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